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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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TEXAS INSTRUMENTS INCORPORATED
P O BOX 655474, M/S 3999
DALLAS, TX 75265

EXAMINER	
YOUNG, JANELLE N	
ART UNIT	**PAPER NUMBER**
2618	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/11/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/790,525	ROSENLOF ET AL.	
	Examiner	Art Unit	
	Janelle N. Young	2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 January 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-33* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-33* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *11 January 2007* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

Applicant's arguments filed January 11, 2007 have been fully considered but they are not persuasive.

Applicant argues that Wright fails to teach the use of a power detector. However, Wright et al. teaches a correction system comprising: an Adaptive Control Processing and Compensation Estimator (ACPCE); which reads on claimed a power detector, maintains control, measures, and/or monitors of the output of the Linear Nonlinear Component (LINC) amplifier that is to be transmitted via antenna; which has been interpreted to read on claimed that provides an indication of power associated with a transmitter output signal (Fig. 2 & 13-14; Abstract; Col. 15, line 19-Col. 24, line 38; Col. 25, line 8-Col. 26, line 42; and Col. 38, lines 60-67 in respect to Col. 3, lines 49-61; Col. 4, lines 19-38; and Col. 44, line 57-Col. 45, line 13).

Applicant argues that Wright fails to disclose the mismatch correction and a control that can adjust one or both of I and Q signal components. However, Wright et al. teaches adjust the mismatch and I/Q signal components ((Col. 12, line 50-Col. 14, line 3; Col. 14, line 51-Col. 15, line 5; and Col. 42, line 56- Col. 43, line 2).

Applicant also argues that Wright does not disclose a weight factors for the correction system. However, Wright et al. teaches control over by calculating a weighted average for the power compensation parameters (Col. 31, line 66-Col. 33, line 27).

Applicant also argues that Wright does not consider mitigating spikes. However, Wright et al. teaches minimizing distortions; the claimed spikes are interpreted as a type

of distortion (Col. 12, line 50 – Col. 14, line 3; Col. 21, lines 29-54; Col. 37, line 66-Col. 38, line 9; and Col. 40, lines 28-40).

Response to Amendment

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1-33 are rejected under 35 U.S.C. 102(b) as being anticipated by Wright et al. (US Patent 6054894).

As for claim 1, Wright et al. teaches a correction system comprising:

an Adaptive Control Processing and Compensation Estimator (ACPCE); which reads on claimed a power detector, maintains control, measures, and/or monitors of the output of the Linear Nonlinear Component (LINC) amplifier that is to be transmitted via antenna; which has been interpreted to read on claimed that provides an indication of power associated with a transmitter output signal (Fig. 2 & 13-14; Abstract; Col. 15, line 19-Col. 24, line 38; Col. 25, line 8-Col. 26, line 42; and Col. 38, lines 60-67 in respect to Col. 3, lines 49-61; Col. 4, lines 19-38; and Col. 44, line 57-Col. 45, line 13); and

a compensation system that employs the indication of power to compensate for at least one transmitter impairment affecting the transmitter

output signal (Abstract; Col. 5, line 64-Col. 6, line 67; Col. 31, line 66-Col. 32, line 17; and Col. 40, lines 7-13).

As for claim 2, Wright et al. teaches a correction system comprising: the compensation system being configured to selectively adjust at least one of an in-phase (I) signal component and a quadrature (Q) signal component based on the indication of power to mitigate distortion characteristics in the transmitter output signal (Col. 12, line 50-Col. 13, line 35 and Col. 42, lines 26-42).

As for claim 3, Wright et al. teaches a correction system comprising: the indication of power further comprising a relative power measured by the power detector associated with the respective I and Q signal components (Col. 24, lines 39-63 and Col. 42, lines 26-42).

As for claim 4, Wright et al. teaches a correction system comprising: the compensation system further comprising a carrier correction system that adjusts DC offset of at least one of an in-phase (I) signal component and a quadrature (Q) signal component utilized to provide the transmitter output signal based on the indication of power to mitigate spikes in the carrier level of the transmitter output signal (Col. 7, lines 22-65; Col. 8, lines 3-27; Col. 14, line 38-Col. 15, line 5; and Col. 37, line 66-Col. 38, line 9).

As for claim 5, Wright et al. teaches a correction system comprising: the compensation system further comprising an equalization system that adjusts tones in a signal spectrum employed to provide the transmitter output signal so that the signal spectrum has a desired spectral shape, the equalization system adjusting the tones in

the signal spectrum during calibration based on the indication of power (Col. 27, lines 17-38; Col. 31, lines 30-53; Col. 35, lines 30-54; Col. 36, lines 11-30; and Col. 45, lines 26-31 & 35-58).

As for claim 6, Wright et al. teaches a correction system comprising: the equalization system selectively weighting tones in the signal spectrum based on an indication of power associated with the tones in the signal spectrum relative to an indication of power associated with a reference tone in the signal spectrum (Col. 32, line 53-Col. 33, line 27).

As for claim 7, Wright et al. teaches a correction system further comprising:

a comparator that compares a power characteristic associated with each of the tones in the signal spectrum relative to a power characteristic of the reference tone to provide an indication of relative power for each respective tone (Col. 15, lines 6-18 and Col. 36, lines 11-30 in respect to Col. 25, line 44-Col. 26, line 10 and Col. 27, lines 17-38); and

a weighting function that employs the indication of relative power for each respective tone to adjust each respective tone to a desired level relative to the reference tone (Col. 32, line 53-Col. 33, line 27).

As for claim 8, Wright et al. teaches a correction system comprising: the weighting function being applied to adjust at least one of the I-signal component and the Q-signal component of the transmitter output signal to provide the desired spectral shape (Col. 14, line 38-Col. 15, line 5; Col. 35, lines 35-54; and Col. 36, lines 11-30).

As for claim 9, Wright et al. teaches a correction system comprising: further comprising a detector bias component configured to determine a DC bias associated with operation of the power detector, the compensation system employing the DC bias to mitigate effects of the DC bias in the indication of power (Col. 15, lines 19-43 and Col. 36, lines 11-30).

As for claim 10, Wright et al. teaches a correction system comprising: the compensation system is operative to adjust at least one of an in-phase (I) signal component and a quadrature (Q) signal component based on the indication of power to compensate for at least one of a gain and phase mismatch between a signal path for the I-signal component and a signal path for the Q-signal component (Col. 7, lines 40-65 and Col. 42, line 56-Col. 43, line 48).

As for claim 11, Wright et al. teaches a correction system comprising: further comprising a mismatch correction system operative to ascertain an indication of at least one of a gain and phase mismatch between an in-phase (I) signal component and a quadrature (Q) signal component based on the indication of power, the mismatch correction system adjusting at least one of the I-signal component and the Q-signal component based on the indication of the mismatch between I and Q signal components (Col. 13, lines 36-51 and Col. 42, line 56-Col. 43, line 48).

As for claim 12, Wright et al. teaches a correction system comprising: the mismatch correction system further comprising:

a comparator that compares the indication of power associated with the I-signal component and the indication of power associated with Q-signal

component to provide an indication of relative power characteristics corresponding to the mismatch associated with a signal path for the I-signal component and a signal path for the Q-signal component (Col. 28, lines 38-58); and

a control operative to adjust at least one of the I and Q signal components based on the indication of the relative power characteristics (Col. 13, lines 5-25 and Col. 14, line 51-Col. 15, 15, line 5).

Regarding claim 13, see explanation as set forth regarding claim 1 (system claim) because the claimed integrated circuit for a correction would perform the system steps.

As for claim 14, Wright et al. teaches a communications apparatus comprising:

a baseband system that provides in-phase (I) and quadrature (Q) signal components (Col. 8, lines 3-27 and Col. 13, line 52-Col. 14, line 3);

a correction system associated with the baseband system for adjusting at least one of the I and Q signal components based on an indication of power of a transmit signal to compensate for impairments associated with the communications apparatus (Col. 7, lines 22-65; Col. 8, lines 3-27; Col. 14, line 38-Col. 15, line 5; and Col. 37, line 66-Col. 38, line 9);

a transmitter that provides the transmit signal based on the adjusted I and Q signal components (Col. 12, line 50-Col. 13, line 35 and Col. 42, lines 26-42); and

a power detector that detects power associated with the transmit signal and provides the indication of power (Abstract; Col. 3, lines 49-61; Col. 4, lines 19-38; and Col. 44, line 57-Col. 45, line 13).

As for claim 15, Wright et al. teaches a communications apparatus comprising: the correction system further comprising a carrier correction system that adjusts a level of at least one of the I and Q signal components based on the indication of power to compensate for an impairment associated with the communications apparatus that affects a level of the carrier signal in the transmit signal (Col. 8, lines 3-27 and Col. 37, line 66-Col. 38, line 9).

As for claim 16, Wright et al. teaches a communications apparatus comprising: the correction system further comprising an equalization system that adjusts tones in a signal spectrum corresponding to the transmit signal based on the indication of power so that the signal spectrum has a desired spectral shape (Col. 27, lines 17-38; Col. 31, lines 30-53; Col. 32, line 53-Col. 33, line 27; Col. 35, lines 30-54; Col. 36, lines 11-30; and Col. 45, lines 26-31 & 35-58).

As for claim 17, Wright et al. teaches a communications apparatus comprising: the equalization system selectively weighting tones in the signal spectrum based on an indication of power associated with the tones in the signal spectrum relative to the indication of power associated with a reference tone in the signal spectrum (Col. 32, line 53-Col. 33, line 27).

As for claim 18, Wright et al. teaches a communications apparatus comprising: the correction system further comprising a mismatch correction system operative to

ascertain, based on the indication of power, an indication of mismatch associated with a signal path for the I-signal component and a signal path for the Q-signal component, the mismatch correction system adjusting at least one of the I-signal component and the Q-signal component based on the indication of the mismatch between I and Q signal components (Col. 13, lines 36-51 and Col. 42, line 56-Col. 43, line 48).

As for claim 19, Wright et al. teaches a communications apparatus comprising: wherein the mismatch further comprises at least one of a phase imbalance and a gain mismatch caused by circuitry in the signal path for the I-signal component and the signal path for the Q-signal component (Col. 7, lines 40-65 and Col. 42, line 56-Col. 43, line 48).

Regarding claim 20, see explanation as set forth regarding claim 14 (apparatus claim) because the claimed integrated circuit for a correction would perform the apparatus steps.

As for claim 21, Wright et al. teaches a transmitter system comprising:

means for determining an indication of power associated with a transmit output signal (Abstract; Col. 3, lines 49-61; Col. 4, lines 19-38; and Col. 44, line 57-Col. 45, line 13); and

means for compensating for distortion in the transmit output signal based on the indication of power (Col. 13, lines 5-35 and Col. 28, lines 38-57).

As for claim 22, Wright et al. teaches a transmitter system further comprising: means for shaping a signal spectrum in the transmit output signal by adjusting at least one of an in-phase (I) signal component and a quadrature (Q) signal component based

on the indication of power (Col. 14, line 38-Col. 15, line 5; Col. 35, lines 35-54; and Col. 36, lines 11-30).

As for claim 23, Wright et al. teaches a transmitter system further comprising: means for, based on the indication of power, compensating for at least one of gain and phase mismatch associated with an in-phase signal path and a quadrature signal path of the transmitter system (Col. 13, lines 36-51 and Col. 42, line 56-Col. 43, line 48).

As for claim 24, Wright et al. teaches a transmitter system further comprising: means for mitigating spikes in a carrier signal of the transmit signal by applying a DC signal to, based on the indication of power, adjust at least one of an in-phase (I) signal component and a quadrature (Q) signal component (Col. 7, lines 22-65; Col. 8, lines 3-27; Col. 13, line 52-Col. 14, line 3; Col. 24, lines 39-63; and Col. 44, line 57-Col.45, line 13).

As for claim 25, Wright et al. teaches a transmitter system comprising: wherein the impairments comprise at least one of spikes in a carrier signal of the transmit signal, attenuation distortion in a signal spectrum corresponding to at least a portion of the transmit signal, a gain mismatch associated with an in-phase (I) signal path and a quadrature (Q) signal path, and a phase mismatch associated with the I-signal path and the Q-signal-path (Col. 7, lines 40-65 and Col. 42, line 56-Col. 43, line 48).

As for claim 26, Wright et al. teaches a transmitter system further comprising: means for calibrating the means for compensating to mitigate the impairments (Col. 31, lines 30-53 and Col. 31, line 66-Col. 32, line 17).

As for claim 27, Wright et al. teaches a transmitter system comprising: the means for calibrating further comprising:

means for providing at least one calibration tone having an I-signal component and a Q-signal component (Col. 7, lines 40-65 and Col. 42, line 56-Col. 43, line 48); and

means for adjusting at least one of the I-signal component and the Q-signal component based on the indication power, the means for compensating employing the adjusted at least one of the I-signal component and the Q-signal component to mitigate the impairments (Col. 12, line 50-Col. 13, line 35 and Col. 42, lines 26-42).

As for claim 28, Wright et al. teaches a method to correct impairments associated with a communications apparatus, the method comprising:

detecting an indication of power associated with a transmit signal (Abstract; Col. 3, lines 49-61; Col. 4, lines 19-38; and Col. 44, line 57-Col. 45, line 13); and

selectively adjusting at least one of an in-phase (I) signal component and a quadrature (Q) signal component based on the indication of power to compensate for impairments associated with the communications apparatus that affect the transmit signal (Abstract; Col. 5, line 64-Col. 6, line 67; Col. 31, line 66-Col. 32, line 17; and Col. 40, lines 7-13).

As for claim 29, Wright et al. teaches a method to correct impairments associated with a communications apparatus, further comprising applying a DC offset for at least

one of the I-signal component and the Q-signal component to mitigate spikes in a carrier for the transmit signal (Col. 7, lines 22-65; Col. 8, lines 3-27; Col. 14, line 38-Col. 15, line 5; and Col. 37, line 66-Col. 38, line 9).

As for claim 30, Wright et al. teaches a method to correct impairments associated with a communications apparatus, further comprising adjusting at least one of the I-signal component and the Q-signal component based on the indication of power to mitigate at least one of gain and phase mismatches associated with an I-signal path and a Q-signal path to which the respective I-signal component and the Q signal component are provided (Col. 7, lines 40-65 and Col. 42, line 56-Col. 43, line 48).

As for claim 31, Wright et al. teaches a method to correct impairments associated with a communications apparatus, further comprising:

determining an indication of a phase imbalance associated with the I-signal path and the Q-signal path (Col. 6, lines 7-28; Col. 8, lines 3-28; Col. 1, line 52-Col. 14, line 3; Col. 14, lines 39-50; Col. 24, lines 39-63; Col. 34, lines 15-36; Col. 37, line 66-Col. 38, line 9; and Col. 45, lines 35-58);

determining an indication of a gain mismatch associated with the I-signal path and the Q-signal path (Col. 13, lines 36-51 and Col. 42, line 56-Col. 43, line 48); and

calibrating the adjustments to the at least one of the I-signal component and the Q-signal component based on the indication of the phase imbalance and the indication of the gain mismatch (Col. 7, lines 40-65; Col. 13, lines 36-51; and Col. 42, line 56-Col. 43, line 48).

As for claim 32, Wright et al. teaches a method to correct impairments associated with a communications apparatus, further comprising applying weight factors to at least one of the I-signal component and the Q-signal component for tones that form a signal spectrum of the transmit signal for adjusting a spectral shape of the transmit signal (Col. 32, line 53-Col. 33, line 27 and Col. 35, lines 35-54).

As for claim 33, Wright et al. teaches a method to correct impairments associated with a communications apparatus, further comprising determining a weight factor for each of the tones based on an indication of power associated with each respective one of the tones relative to an indication of power associated with a reference one of the tones (Col. 27, lines 17-38; Col. 32, line 53-Col. 33, line 27; and Col. 42, lines 26-42).

Conclusion

2. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Janelle N. Young whose telephone number is (571) 272-2836. The examiner can normally be reached on Monday through Friday: 8:30 am through 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nay Maung can be reached on (571) 272-7882. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JNY
March 31, 2007

NAY MAUNG
SUPERVISORY PATENT EXAMINER